



Urban Regeneration on railway lands

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Abstract

For the first time in history, the population living in cities has surpassed the rural population, and this trend is increasing every day. And according to the UN in 2050 the urbanites will be 70% of the population of the planet. We have entered a new era. The Urban Era Cities are today the engines of economic development, innovation catalysts and investment multipliers (they already account for 70% of GDP). But they also face serious problems arising from increased pollution, high noise levels, excessive resources consume, CO² emissions, congestion, spending of time, etc.

These both sides of the coin, makes necessary to work for mitigate the negative effects of urbanization and enhance the positive ones, and the only way to do this is through a good urban and infrastructure planning.

Faced with this challenge, major cities in developed world are carrying out major redevelopment and Regeneration Urban Land Projects, recovering degraded areas, industrial zones, obsolete or unused infrastructures inside the city, to create new quality vibrant spaces for citizens, parks, housing, offices, shops and urban infrastructures on areas with optimal accessibility and connection around the High-Speed railway Station. They achieve then to minimize the resources needed (soil, commute, energy and time), and create more compact and efficient cities that face the necessary growth, in a more sustainable way.

Milan, Perth, New York, San Francisco, Frankfurt or London have already completed these. Redevelopment Projects and their success is setting an example for other cities like Sydney that is following its wake with a budding macro Project now in planning stage.

All these Projects have in common the essence of recovering railway lands for the city, increasing the value o public domain and transforming into public spaces and Real Estate developments that help to self-financing the expensive infrastructures required.

The main Spanish cities have already joined this trend of Urban Regeneration. Madrid aspires to get on this boat with the largest of all the Redevelopment Projects proposed.

However, it have been found notable differences between the designed Projects in Spain and those carried out in other countries, which can help us to understand each other and to learn from their successes and mistakes.

Keywords: # Urban development· Regeneration # High-Speed railway Station # Self financing, Projects # Railway lands.

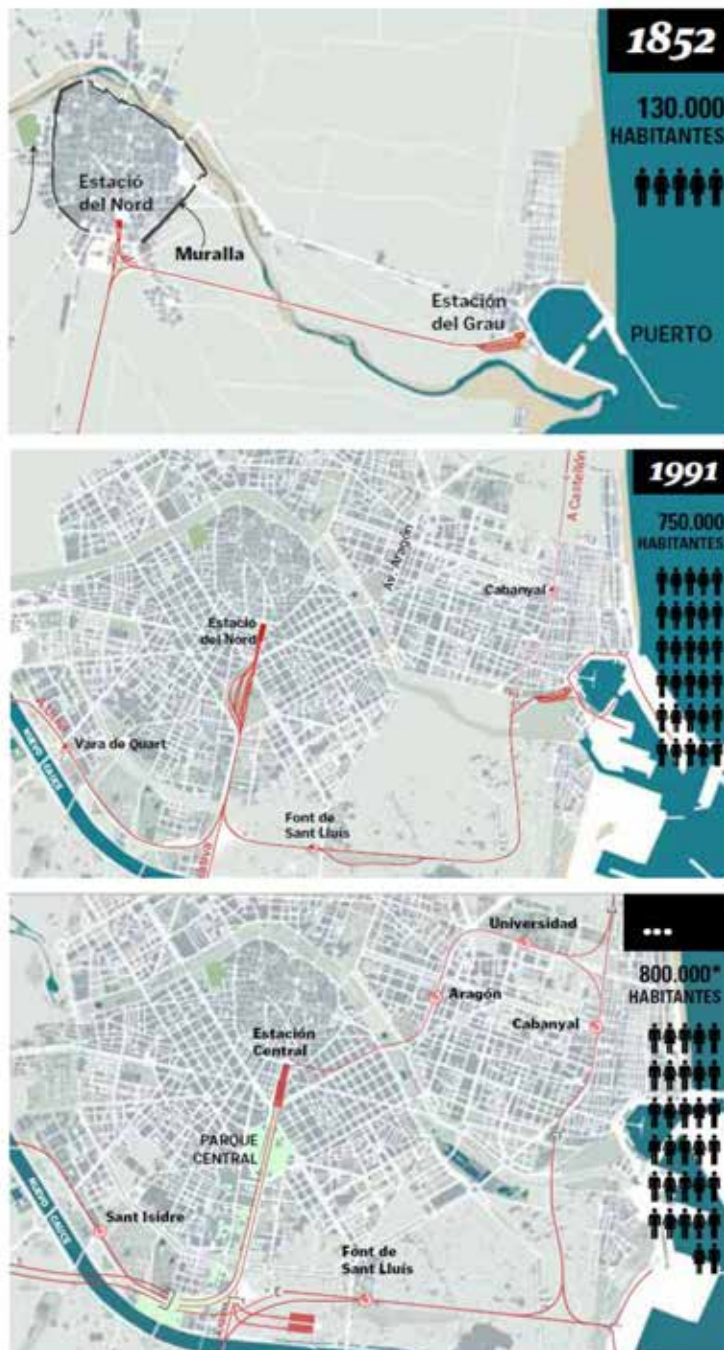
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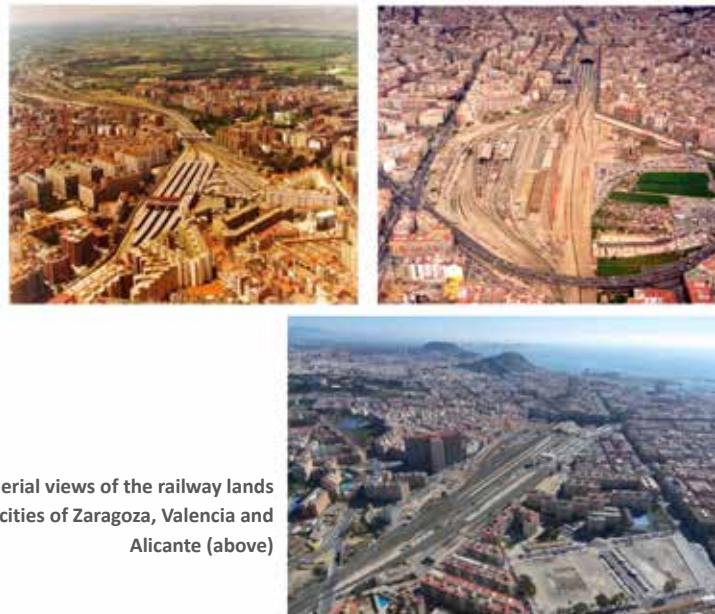
1. Introduction

In recent years we are celebrating in many main cities of Spain the railway arrival hundred and fifth anniversary. An event that becomed in a great change in its history, its dynamics, its economy and its way of relating with the world.

The later urban phenomenon has been similar in all of them. The cities have been growing around the railway node until gobbled the railway stations and their annexed facilities, that although they were originally constructed in the urban fringe, happened to be irremediably in the central nucleus of the city.



Valencia City from 1852 to present



Historical aerial views of the railway lands gobbled by the cities of Zaragoza, Valencia and Alicante (above)

Since then, the Railway-City couple has been, complex and convulsive, and the celebrations for its arrival were transformed into annoyances, walls, pollution, noise, disintegration and rupture of the urban net. The city and the railroad help and need each other, but they give their backs as “proud lovers”.

Hundred and fifty years later, the arrival of the High Speed Railway, has served as a spur for the integral reconsideration of the railway equipment in the cities. Major works of adaptation and improvement of the existing vast railway facilities are needed to accommodate new traffic, new gauges and new technology.

2. The opportunity

Remodeling these railway infrastructures, entails very high cost and the space needed is not always available due to the city’s gulp of its “hated lover”. But the problem that this urban takeover had generated was not only a problem, but a strategic opportunity for the railroad, but also and specially, for the city.

These railway installations, which need to be refurbished and improved, are occupying now a large amount of land in the center of the cities, lands that have an extraordinary urban value because of its strategic location.

On one side they are central plots, with optimal accessibility with the city and on the other side they are next to the High Speed Train Station which give them a privileged access to railway communications and to the main business centers of the country and the world!

This fact, endows these soils with a valuable potential that allows them to fight in unbeatable conditions with other urban plots, but that needs to be transformed to add value and deliver his full potential.

Blending this cost-benefit tandem, with the fact that cities demanded the disappearance of these railway installations, whose coexistence with the city had become conflictive, arises the possibility of cooperating!

What if we modernized and removed the railway station’s complementary facilities outside from the city center?



What if we integrated rail access in a kindfull way with its surroundings?

What if these costly works could be self-financed with the value of railroad lands?

It would be to square of the circle!

3. The Railway-City Integration Agreements

As a result of this situation arises the Railway-City Integration Agreements with the deal of develop ambitious Urban Redevelopment Projects to create a new centrality around the Railway Station that increase value of the railway lands become unneeded for railway operation.

In 2002, Integration Agreements began to be signed between three levels of Spain Administrations. The first city to sign was Zaragoza in March 2002. It was followed by Barcelona, Logroño and Gijón (2002); Valencia, León, Valladolid and Alicante (2003); Murcia and Cartagena (2006), and lastly Palencia, Vitoria and Almería (2008 and 2010).

The Integration Agreements served to confirm the interest, to establish the commitments of the parties, and to estimate the costs of the projects.

The Ministry of Public Works pays the costs of the High Speed arrival and yields their lands, the City Council design and deliver the Urban Planning and also yield their urban rights, the Autonomous Communities approve the Urban Planning and contributing to Railway-City integration works.

Finally, the capital gain of the plots, after their conversion, regeneration and valorization, would help to finance the necessary and high investments for the railroad and the city.

All Administrations are essential to carry out the process of urban regeneration, and all of **them obtain benefits of it**. The owner of lands is the Railway Infrastructure Administrator (Adif) which achieve to upgrade its facilities and the City Council gain quality urban space for the citizens. But this transformation has a high cost and all actors must cooperate and work together within one overarching, shared vision to achieve the common goal.



Rendering of Urban Planning solution. New urban district proposed for Zaragoza.

4. The Rail-Urban Integration Societies (SIF)

As a result of these Public Agreements, Rail-Urban Integration Companies were created. These Companies are corporations with 100% public capital, in which Ministry of Public Works owns 50%, the City Council have 25% and the Autonomous Community with the other 25%.

These Societies were created to be the drivers behind the railway transformation and urban redevelopment, coordinating three public administrations involved, from the perspective of the self-financing based on the capital gains of the disused lands.

The Companies could also use the necessary financing channels in order to solve the financial gap generated by the large initial infrastructures investments needed to make possible to obtain future Real Estate incomes.



Rendering of Urban Planning solutions proposed for, Valencia (up) and Alicante (below).

5. Change of scenery

Over the past 15 years, the “story” has changed so much due to many obstacles and setbacks that happened along the way, and have made the square of the circle has not been so easy.

The first one was the Spain Real Estate bubble that between 1998 and 2007 caused land and



housing prices to rise six times faster than wages and the CPI, and that an overvaluation of this kind of assets was accepted by all actors naturally.

During this period, the official appraisals increased each year the expected incomings of these railway plots, increasing prospect gains that allowed to dream with greater scope infrastructures planned¹.

The second one occurred when considerably increased budgets were thrown by developing Construction Projects. Some of them were offset by higher contributions from the devoted Administrations; others were diluted in the higher income estimations.

The third was the **global financial crisis**, which meant for Spain the end of the Real Estate bubble and the banking crisis of 2012. The drastic decrease of credit meant a speed worsening conditions for the Societies to be financed.

As a result of this tricky financial situation, the Spanish Constitution was reformed in 2011 with the objective of guaranteeing budgetary stability and spending ceilings for Public Administrations were stabilized, limiting indebtedness capacity of the Societies (SIF)

The crisis became in unemployment increasing and rising of social movements and politic formations with ideas of economic-productive model change and questioning of the current political system. From this movement comes up the last aspect arose to shake the foundations of the model and the landscape.

Since May 2015, these new formations have won many of the main Spanish City Councils (Barcelona, Madrid, Valladolid, Zaragoza, Alicante, Valencia, Cartagena ...) changing the political panorama Integration Societies Boards of Directors and modifying investment priorities and urban development models.

6. What is being done in the rest of the world?

The complex coexistence of railway and city is by no means an exclusive problem of Spain, not even of Europe. It is a situation that has already been faced by many cities of the world solving it through **different proposals for integration** that we could call hard and soft.

A soft solution in which the city adapts itself to the railroad while maintaining the railway infrastructure over land, but executing environmental and landscape treatments to the infrastructure that improve and upgrade its coexistence with the urban net. Footbridges, underpasses for pedestrian and cars, anti-noise screens ... This is a solution commonly used in European cities and also valid and used in many of Spanish cities.

But in many other cases a much more drastic solution has been chosen, in which it's the railroad which transform itself (variants, relocations out from the city, undergrounding ...) to redevelop its lands in vibrant urban spaces, new centralities of the city with great value. Value used to finance the expensive necessary infrastructures for that makeover.

Today, there are many cities in the developed world that have embarked on these complex Rail-Urban operations for transforming their railway soils. There are examples of successful

Projects that have already been carried out in Milan (*Porta Nuova*), New York (*Hudson Yards*), Perth (*Perth City Link*), London (*Kings Cross*), Stuttgart (*Stuttgart 21*), Frankfurt (*Europaviertel*), San Francisco (*TransBay*), Berlin (*EuropaCity*). Other Projects are now beginning to take place, following the success of its neighboring cities Sydney (*Central to Eveleigh*)

All Projects, with the same vision of Urban Regeneration and self-financing basis, has approach

¹ The appraisals were based, on actual market sales at that time. In 2007, the Zaragoza Society offer its first parcel on the market, selling it almost twice the bid price.

this type of hard Rail- Urban Integration through complex infrastructure operations and Real Estate developments .

But in addition, these great projects of Urban Regeneration have been carried out during (and despite) one of the worst economic crises in modern history, while the Spaniards remain stagnant or in a slow progress.

Where does their success reside? What can we learn from them?

Perth

Nueva York

Sidney



Initial and future images of the Redevelopment of railway lands in Perth, New York and Sydney.

Londres

Milán

San Francisco



Initial and future images of the Redevelopment of railway lands in London, Milan and San Francisco .



7. The cities of the future

Today, cities are definitely the engines of economic development, innovation catalysts and investment multipliers (they produce 70% of GDP with 50% of the population). But they also face serious problems due to pollution, high noise levels, excessive resources consumption, CO₂ emissions, congestion, time consumption, etc ...

These both sides of the coin make more than ever necessary to work for mitigate the negative effects of urbanization and enhance the positive ones, and the only way to do this is through good urban and infrastructure planning.

Faced with this challenge, major cities in the developed world are carrying out major urban regeneration and recycling soil projects, recovering degraded areas, industrial areas, disused infrastructures, to create new quality spaces for citizens, green areas, housing, offices, shops, vibrant new districts, and urban infrastructures on areas with optimal accessibility in the surroundings of the High Speed Railway Station.

They achieve with this Redevelopment Projects to minimize resources (soil, displacement, energy and time), and create more compact and **efficient cities that face the necessary growth, in a more sustainable way.**

The main Spanish cities have already joined this trend of Urban Regeneration. Madrid aspires to get on this boat with the biggest of all the Projects planned.

However there are notable differences between Spanish Projects and those carried out in other countries, which can help us to understand and to learn from their successes and mistakes.

- Do all urban regeneration operations have similar sizes?
- Is the initiative public or private?
- What kind of urban development do they propose?
- How are these expensive operations been financed?
- How much building floor is generated by the reconversion of soils? What is the current result of these projects?

8. Conclusions

Once we analyze where we have come from, and how we have walk the path, the most important thing is to find solutions so that we can move forward and succeed in carrying out this Urban-Rail Redevelopment Projects that are necessary for cities and their inhabitants.

On the way, we have found that other countries have already successfully undertaken these complex Re urbanization Projects, transforming them into new urban areas with vocation to become vibrant centrality, revitalizing and increasing value of the soils. All these project´s dimension have transcended the area they transform, with a global impact on the whole city.

Most of international Projects analyzed have already been successfully finished, which is not the case of any of the Spanish ones which are nowadays under development or still planning. That is why we analyze the keys to success of those who go ahead, to copy their successes, learn from their mistakes and to draw conclusions.

The first of the aspects that calls attention is the size of the transformed areas. Among all the similar Urban-Rail Redevelopment Projects analyzed, the Spanish ones are remarkably much more larger than ones developed in other countries, doubling and tripling even to the international projects.

It seems likely it would be more feasible to carry out this type of developments, if undertaken on smaller projects.

Country	City	Project Name	Size
France	Paris	La Defense	31 Ha
UK	London	Canary Wharf	46 Ha
EEUU	New York	Hudson Yards	11 Ha
Australia	Perth	Perth City Link	14 Ha
Italia	Milan	Porta Nuova	29 Ha
UK	London	Kings Cross	27 Ha
España	Madrid	Distrito Castellana Norte	311 Ha ²
	Valencia	Valencia Parque Central	60 Ha
	Zaragoza	Zaragoza Alta Velocidad	107 Ha
	Gijón	Gijón al Norte	17 Ha
	Barcelona	Barcelona Sagrera	149 Ha
	Logroño	Logroño Integración del Ferrocarril	22 Ha
	Valladolid	Valladolid Alta Velocidad	100 Ha
	Alicante	Alicante Alta Velocidad Nodo del Transporte	47 Ha
	Murcia	Murcia Alta Velocidad	21 Ha

(2)

Table 1: Size of Urban Regeneration Projects

Source: Own elaboration

In Spain, the sponsors carrying out this type of Projects are mostly public, except for the one of Madrid, which is nowadays private initiative (under negotiation), but not in other international operations. Although they have needed to rely with the Public Administration support, the initiative and funding in this kind of Projects is mostly private. The main reason for the slowing of the Spanish projects has been the financial and Real Estate crisis, and the impossibility of raising the indebtedness of the Public Companies, due to belonging to the Public Administration sector; this would increase the National Public Deficit. But the similar Projects analyzed in New York, Perth, or Milan, that were also carried out during the same global financial crisis, has gone ahead basically for one reason: to have assured external financing.³

² Under currently negotiation.

³ In many cases, initial investors have now left the Project after completion of urban development such as Milan, where the new district was acquired in 2015 by the Qatar Investment Authority (2.000M€) thanks to the good expectations of the regenerated district.



Country	City	Project Name	Sponsor
Francia	Paris	La Defense	Public
UK	Londres	Canary Wharf	Private
EEUU	New York	Hudson Yards	Private
Australia	Perth	Perth City Link	Public-Private
Italia	Milán	Porta Nuova	Private
UK	London	Kings Cross	Private
España	Madrid	Distrito Castellana Norte	Private ⁽⁴⁾
	Valencia	Valencia Parque Central	Public
	Zaragoza	Zaragoza Alta Velocidad	Public
	Gijón	Gijón al Norte	Public
	Barcelona	Barcelona Sagrera	Public
	Logroño	Logroño Integración del Ferrocarril	Public
	Valladolid	Valladolid Alta Velocidad	Public
	Alicante	Alicante Alta Velocidad Nodo del Transporte	Public
	Murcia	Murcia Alta Velocidad	Public

(4)

Table 2: Sponsor of Urban Regeneration Projects

Source: Own elaboration

The most striking aspect of analysis is the model of city proposed, which is showed by building coefficient: All the Urban-Rail Regeneration Projects designed today in Spain have building coefficient much smaller than its equivalents in other parts of the world.

The most important Urban Redevelopment Projects in Paris and London at the end of the SXX (La Defense and Canary Wharf) were designed with much higher coefficients (4 times greater), The Hudson Yard Project at New York is ten times bigger and the Perth Project is double from Spanish ones average building coefficients. The urban development planned in these Projects is always for a high density city model.

It seems that without the idea of reaching the 1980´s European Projects high densities (45m²c/m²s), nor the current ones in Manhattan (9m²c/m²s which logically draw a different city model from the Mediterranean one), it might be necessary to tend in Spain to **greater plot ratios**, in order to make more economic sustainable these high expensive but high necessary Urban Regeneration Projects.

4 Under currently negotiation

Country	City	Project Name	Building Coef
Francia	Paris	La Defense	4,20 m ² _t /m ² _s
UK	London	Canary Wharf	5,36 m ² _t /m ² _s
EEUU	New York	Hudson Yards	9,55 m ² _t /m ² _s
Australia	Perth	Perth City Link	3,30 m ² _t /m ² _s
Italia	Milán	Porta Nuova	0,86 m ² _t /m ² _s
UK	Londres	Kings Cross	2,1 m ² _t /m ² _s
España	Madrid	Distrito Castellana Norte	1,05 m ² _t /m ² _s ⁵
	Valencia	Valencia Parque Central	1,05 m ² _t /m ² _s
	Zaragoza	Zaragoza Alta Velocidad	0,65 m ² _t /m ² _s
	Gijón	Gijón al Norte	0,76 m ² _t /m ² _s
	Barcelona	Barcelona Sagrera	0,8 m ² _t /m ² _s
	Logroño	Logroño Integración del Ferrocarril	0,59 m ² _t /m ² _s
	Valladolid	Valladolid Alta Velocidad	0,86 m ² _t /m ² _s
	Alicante	Alicante Alta Velocidad Nodo del Transporte	0,47 m ² _t /m ² _s
	Murcia	Murcia Alta Velocidad	1,00 m ² _t /m ² _s

(5)

Table 3: Building coefficient of Urban Regeneration Projects

Source: Own elaboration

Another aspect differentiate in a striking way with world Projects, is the final uses of the new district created. If in the major international Urban-Rail Redevelopments the main use is offices and commercial use, in Spain, by contrast, the majority use is housing.

This will always depend on each city and the necessary market studies, but it is logical that if what is sought is to create a new centrality around a very important transport node such as a High Speed Train Station, to increase value of these soils, a more balanced mix of uses would be highly recommended to achieve this goal.

5 Under currently negotiation



Country	City	Project Name	Housing use percentage
Australia	Perth	Perth City Link	37,60%
EEUU	New York	Hudson Yards	4,76%
Italia	Milán	Porta Nuova	28,00%
UK	Londres	Kings Cross	35,60%
España	Madrid	Distrito Castellana Norte	58,26%
	Valencia	Valencia Parque Central	80,00%
	Zaragoza	Zaragoza Alta Velocidad	64,29%
	Gijón	Gijón al Norte	90,00%
	Barcelona	Barcelona Sagrera	73,00%
	Logroño	Logroño Integración del Ferrocarril	100,00%
	Valladolid	Valladolid Alta Velocidad	78,64%
	Alicante	Alicante Alta Velocidad Nodo del Transporte	78,00%
	Murcia	Murcia Alta Velocidad	71,30%

Table 4: housing use percentage of Urban Regeneration Projects

Source: *Own elaboration*

But where the most important efforts must be done is undoubtedly to enhance the value and reinforce the key strengths that these soils have beyond the hundreds of square meters gross.

In all cases they are the best location plots that allow them to compete in unbeatable conditions with the rest of available floors. We have ground in the heart of historic city center with optimal local connection with the host towny, and they are next to the High Speed Train Station with privileged accessibility to the big business centers of the country and the world.

This binomial gives these plots a valuable potential for a future scenario of more efficient and sustainable technological business models towards which, like it or not, we are tending toward, in this increasingly global and competitive world.

Some of these answers can help us to advance at the crossroad where these projects are now in Spain, but one of the main conclusions is that the unstoppable evolution of cities simply does not allow the possibility of not doing anything.

If we want our cities to compete with the world's leaders ones, we can't condemn these Projects and future opportunities to the non-execution, only because of the complex change of scenery that has occurred.

No one doubts today the success of the large urban Regeneration Operations of *La Defense* in Paris or *Canary Wharf* in London, the result of the reconversion of industrial and port soils. Both changed the use of soils in order to regenerate degraded areas to convert them in urban icons and symbols of modernity of both cities.

The transformation now is not an option. It is only in our hand that this evolution may be done in the most sustainable and efficient way.

The Regeneration Projects on railway lands will help achieve this objective, recycling and recovering centric and optimally communicated plots, so that they stop being a rupture and become a union, stop being a scar and become a focus for creating value, attraction of investment and especially in places that contribute to improving the quality of life of all citizens.

“Our Struggle for Global Sustainability will be won or lost in Cities”

Ban Ki Moon

Secretary General of the UN

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